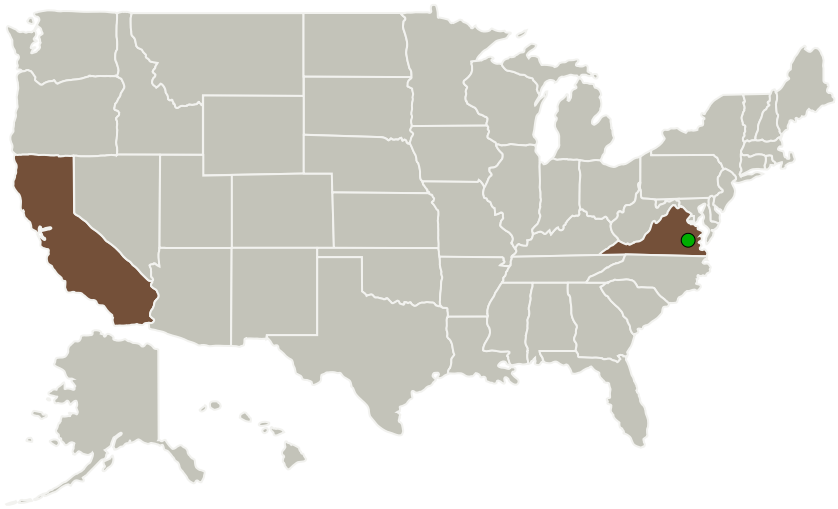
1570 nm High Energy Fiber Laser, Phase I

Completed Technology Project (2012 - 2012)

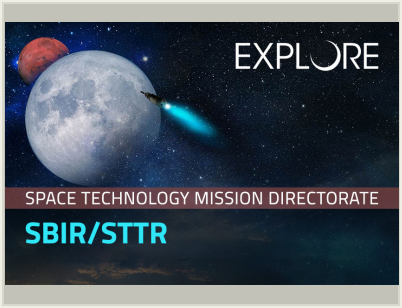
Project Introduction

This SBIR phase I project proposes a single frequency high energy fiber laser for remote sensing. Current state-of-art technologies can not provide all features of high energy and efficiency, compactness, and narrow spectral width. PolarOnyx proposes, for the first time, a high energy (10 mJ) fiber amplifier to meet with the requirement of solicitation. This proposal is based on the sub-mJ fiber laser at 1570 nm we have achieved in our labs. In the high power amplifier stage, PolarOnyx proposes an innovative fiber amplifier approach that will be able to operate at pulse repetition rate (5 kHz to 20 kHz) and reach high energy level of 2-10 mJ. These will make the fiber laser transmitter system superior in terms of wall plug efficiency, energy, noise, size, and cost. A tabletop experiment will be demonstrated in Phase I time frame for proof of concept. A compact prototype will be delivered in Phase II.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Polaronyx, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	San Jose, California
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



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Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
California	Virginia

Project Transitions

February 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/137796)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Polaronyx, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

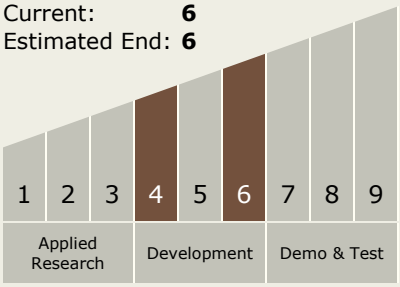
Carlos Torrez

Principal Investigator:

Jian Liu

Technology Maturity (TRL)

Start: **4**
Current: **6**
Estimated End: **6**



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Completed Technology Project (2012 - 2012)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.5 Lasers

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System